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Serial Number: 09/877167 (Provisional Serial Number: 60/210877)

Appn. Filed: 2000 June 9<sup>th</sup>

Applicant(s): Edward W. Sheehan and Ross C. Willoughby

Appn Title: Apparatus and Method for Focusing Ions and Charged Particles at Atmospheric Pressure

Examiner/GAU: \_\_\_\_\_

Mailed: \_\_\_\_\_

At: Pittsburgh, PA

Information Disclosure Statement

Commissioner for Patents

Washington, District of Columbia 20231

Sir:

Attached is a completed Form PTO-1449 and copies of the pertinent parts of the references cited thereon. Following are comments on any non-English-language references pursuant to Rule 96:

**Kazuaki** shows a discharge needle positioned opposite a flat plate with an aperture. **Laiko** shows the use of an aperture for sampling an atmospheric pressure MALDI source. Both of these references show prior art of simplistic but inefficient approach of sampling from a dispersive source of ions through apertures in flat plates.

**Yoshiaki** shows an atmospheric pressure interface to a mass spectrometer with hemispherical and flat grids at reduced pressures for focusing ions into an aperture leading into a mass spectrometer. Yoshiaki does not show **grids at atmospheric pressure** for focusing ions and charged particles wherein the electrical fields from one side of the grid penetrate through the individual openings in the grid into adjacent side for the purpose of guiding the trajectory of ions along these field lines from one side of the grid to the other through the openings in the grid, as it is recited in independent claim 1 and its dependent claims 10 to 12; and independent claim 13.

To the contrary, Yoshiaki shows a **series of grids at reduced pressures** where the operation of the electrical potentials for maximum focusing of ions would be severely limited by gas discharge that can occur at reduced pressures in the second stage of pressure reduction of an atmospheric interface to a vacuum system. By not operating at high electrical potentials the ions passing a grid would either strike a grid's wire or be scattered.

Very Respectfully,

Applicant(s):

*Edward W. Sheehan*  
*Ross C. Willoughby*

Enc.: PTO-1449 & References

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Date: 2001 \_\_\_\_\_